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ABSTRACT

A cooperative effort was made by the faculty of South Carolina State College to strengthen student skills perceived as critical to successful performance on standardized tests required for admission to teacher preparation programs and teaching certification. The areas of language skills, reading comprehension, critical thought, and test-taking were identified as important. Instructors examined objectives and evaluation procedures for each course in a teacher education program area and generated an overall assessment plan for each course and teacher education program. An Objectives Intent Review Form was used for each objective. This form involved stating the course objective, indicating the cognitive level, describing the ideal procedures for assessing its attainment, and determining whether its attainment could be measured with an objective-type test item. Objectives were restated, and faculty members were trained on the principles of test item construction, including instruction on desirable and undesirable test item characteristics and specification of item-writing principles. The result of this endeavor was a certain amount of modification of the curriculum to make it more pertinent to the types of examinations students will encounter prior to and during their careers. (JD)

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CURRICULUM MODIFICATION AND COLLEGE FACULTY RETRAINING: A MODEL FOR THE 21st CENTURY

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The project on which we are reporting was part of a larger effort undertaken by the South Carolina State College. The activities we will describe were initiated primarily in the School of Education, but because of the organization of the College, had impact on other schools within the College.

Most of the courses in the teacher education programs are offered through other schools, particulary Arts and Sciences, and two of the programs are housed entirely in other schools—specifically, Early Childhood Education in the School of Home Economics, and Industrial Education in the School of Engineering. Because of this organization and because curricular decisions are made by a Teacher Education Council chaired by the Dean of the School of Education, faculty members of these other schools were involved in the curriculum modification and faculty training activities.

The College recognized a need to strengthen among many of its students certain skills that appear to be critical to successful performance on examinations those students would encounter prior to and during their careers. These are examinations such as the Education Entrance Examination, required for

admission to any teacher preparation program in the State of South Carolina; the National Teachers Examination (NTE), both the Core Battery and specialization tests, required for teaching certification in the State; the Law School Admissions Test (LSAT); the Medical College Admissions Test (MCAT); the Graduate Record Examination (GRE); and others.

The College identified certain areas to be important to successful performance on those exams. The areas identified by the College were:

> Language skills, including vocabulary development in content areas and structural analysis of vocabulary in context;
>
> Reading comprehension, including critical reading skills, inference, understanding of contextual materials, and speed reading;
>
> Critical thought processes, including reasoning and problem-solving skills; and
>
> Test-taking skills, including anxiety relief techniques, skillful guessing techniques, and error avoidance strategies.

Recognizing the scope, intensity and time that would be required to accomplish its goals in these areas, the College planned a comprehensive effort aimed toward improving instruction and enhancing the likelihood that its graduates would develop these skills and be successful on standardized tests. The plans included developmental and enrichment activities in academic areas, curriculum examination, restructuring of coursework, and significantly upgrading student assessment and evaluation activities.

Our activities were a part of those initiated by the School of Education. The discussion will focus on ways in which the activities were planned and conducted to minimize perceived threats to faculty members and academic freedom, and to maximize their potential for impact. The activities we will describe were designed both to improve curriculum, including assessment, and to provide students continuous, repeated experience with test items developed by procedures similar to those used in commercial and large-scale test item development projects and requiring higher levels of cognitive behavior than had been typical.

Because the first author had been identified as having considerable experience in test item development for large-scale assessment programs, she was contacted by the College and asked to consider working with School of Education faculty in two areas. Those areas were:

1. Planning and conducting inservice workshops for members of the College's undergraduate faculty in the School of Education, with special emphasis on programs for faculty development and instructional improvement; and
2. Analyzing teacher-made tests, reference lists, published course requirements, and other instructional materials to determine the needed improvements of instructional strategies and techniques that relate to developing students' interpretative and analytical skills.

This may sound like a very efficient way to effect dramatic change immediately. However, the problems with such an approach become obvious. Conducting workshops does not seem to pose grave threat, but bringing in an external consultant with expertise in a limited number of curriculum areas to review coursework and make judgments and recommendations to faculty members about instruction in areas which they have studied and taught for years and with which they are most intimately familiar has the potential for far more negative than positive results.

For these reasons, Dr. Perez suggested that she visit the campus and interact with administrators and faculty members on a relatively informal basis. The purpose of the visit was to discuss what faculty and administrators saw to be the major needs and how they felt those needs could be addressed, then to identify the specific needs to which her expertise could be applied most efficiently and effectively.

Several options were identified, and it became obvious in the course of meeting with faculty and administrators in large groups and individually that some would be far more desirable than others. It was quite apparent that there was a need for faculty members to be assured that the purpose of the project was <u>not</u> to evaluate their course content and structure, particularly in terms of appropriateness for particular fields. It had to be communicated that everyone responsible for the project believed that the members of each department were the most capable of making those judgments about their own disciplines. The purposes

of the project were explained as: (1) Examining the correspondence between course objectives, content and procedures and evaluation techniques, procedures and criteria, then making recommendations for filling any existing gaps; and (2) Raising the level and kind of thinking and analytical processes required of students in both instructional and assessment activities. It was emphasized that this aspect of the effort to improve instruction was to ensure a close match between what is valued, what is planned, what is taught, and what is assessed and evaluated.

Some of the approaches considered were:

1. Selecting task forces from each area to analyze the curricula and courses in that area, with the consultant assisting in the process, and then designing instruments such as standardized exams through similar procedures;
2. Working strictly to develop objectives-referenced banks of test items on a course-by-course or objective-by-objective basis; and
3. Determining a core set of objectives for all teaching areas and designing standardized comprehensive exams for the core set and for each specialization area, then developing remedial and enrichment programs.

Each of these had some merit, and the potential for negative results was weighed against the potential for positive in each case. The steps that finally were decided on and undertaken

were:

1. Establishing and/or bringing together common objectives for each course;
2. Clarifying the intent of those objectives sufficiently to develop assessment techniques and materials to measure their attainment;
3. Developing a comprehensive assessment strategy for each course to address each of the objectives;
4. Developing banks of student evaluation materials, including test items of all types as well as scoring criteria for subjective types, through procedures similar to those used in development of test items for commercially available tests and those used in large-scale assessment programs, such as:
   a. holding item writing orientation/training sessions which included practice writing, reviewing and revising test items;
   b. completing test item writing assignments and conducting preliminary item screening and revisions;
   c. subjecting items to additional content, measurement, bias and language reviews;
   d. making revisions indicated to be necessary or desirable for improving the test items; and
   e. formatting the test items according to commonly accepted commercial criteria and storing them using computer technology.

For each course included in a teacher education program area, all instructors met together to identify common course objectives and the procedure(s) used to evaluate each objective. Two-day sessions were conducted, with faculty members working in groups such that all of the members of a given department attended the same session and all of the instructors of a given course were assigned to the same work group. The tasks were to examine the objectives and evaluation procedures for each course and to generate an overall assessment plan for each course and teacher education program.

In each session, after appropriate background infomation had been given, a review of Bloom's Taxonomy of Educational Objectives in the Cognitive Domain was conducted, focusing on the characteristics of behaviors classified in each domain and specifying examples of behavioral tasks. A second activity involved analyzing sample objectives, classifying them, and examining the relationships between those objectives and assessment situations for each. Following this analysis, an opportunity for practice was given in which each faculty member specified an objective, classified it according to the Taxonomy, developed an item or assessment situation, and wrote a justification for the classification. Faculty members then reviewed, critiqued and discussed the products in their work groups.

Following this activity, orientation was given to various assessment approaches and how they are related to objectives. For example, there was discussion of such concepts as direct measurement, indirect measurement, approximation, characteristics of objective-type test items, subjective-type items, and similar notions.

Each work group then proceeded to clarify and suggest various measurement approaches for each objective, provide suggestions for the breadth and limitations of assessment/evaluation techniques, and evaluate other suggestions made at the meeting. An Objectives Intent Review Form developed by the first author and used previously in item development projects for large-scale assessment programs was used for each objective. The form required stating the objective, indicating the cognitive level, describing the ideal procedures for assessing its attainment, determining whether its attainment could be measured directly or approximately with an objective-type test item, restating the objective to describe the approximation where appropriate, describing content emphases desired and content limitations necessary, giving other specifications such as the use of graphics and/or scenarios, then describing the types of items intended and any other special considerations.

The review of the intent of each objective was perhaps one of the most valuable components of the project. It forced a serious, in-depth examination of both the value of each course

objective and the nature of what was being described by and expected for each objective, followed by more precise descriptions of the behaviors expected and a consideration of the range of alternatives that could be used for assessment.

Immediately following each objectives/evaluation review, item writing orientation/training sessions were conducted, with faculty members grouped as they had been for the previous sessions. Each of these sessions included:

1. A general overview of the procedures to be followed in the remainder of the project;
2. Discussion of security issues and procedures to be followed in maintaining security;
3. Discussion of desirable and undesirable test item characteristics, including such topics as limitations on item structure, measures to be taken to avoid the appearance of bias and factors that may contribute to item bias, and ways to control readability level and level of thought required;
4. Discussion of review dimensions, procedures and materials;
5. Practice session, including writing, reviewing and revising items; and
6. Discussion of logistics for completing the task, including assignment of item writing and reviewing responsibilites.

Before beginning the training on principles of test item construction, some additional review and discussion of the levels of cognitive behavior was held. This included diagraming and listing sample verbs that may be used in relating evaluation of objectives attainment to the appropriate level(s). This was followed by analysis of several sample test items to determine the level of cognitive behavior required to complete each item. This activity served not only to provide practice in determining the levels of behavior required, but also served to illustrate the valuable lesson that objective-type items can be constructed to require higher-order cognitive processes than are typical of instructor-made tests.

Subsequently, specific training was given in constructing high-quality test items. This included instruction on desirable and undesirable item characteristics and specification of item-writing principles. Specific attention was given to avoiding the appearance of item bias and characteristics that may contribute to item bias. Practice in reviewing items to detect and correct flaws and weaknesses was provided.

Faculty members had brought to the sessions copies of evaluation materials, including their instructor-made tests, that were being used at the time to evaluate student progress and achievement, and began developmental activities by reviewing these materials. They determined necessary and appropriate

revisions that would allow these materials to form the initial core of assessment material for each course. From that point, they prepared items to fill gaps according to assignments made at the meeting. At least one faculty member with appropriate content area expertise then reviewed each item written by another faculty member to detect flaws and weaknesses. Faculty members then revised their items consistent with the results of this initial screening review.

Following these initial item revisions, all items were sent to the first author, who conducted a thorough review of all items, focusing on measurement, bias and language issues. Faculty work groups then were reassembled to consider the review results and to conduct an additional thorough review from a content perspective. Again, the materials and procedures used in conducting the reviews were developed from those used previously by the first author in developing items for large-scale assessment programs.

At the conclusion of all item reviews, faculty members made appropriate revisions of the test items, as indicated by the reviews to be necessary or desirable. The College then began to prepare items in final form, following formatting guidelines consistent with the College's needs and generally consistent with those followed in large-scale and commercial assessment programs. A number of items have been stored on microcomputer disc, and

procedures for storage, retrieval and modification of the items and other assessment materials are being developed and instituted to ensure that materials are kept up to date and revised periodically to be responsive to current needs. Faculty are being trained in procedures such as using student performance data and collecting and using interview data to improve the assessment materials.

An overall assessment strategy is being developed for the teacher education program. Based on input from faculty in the objectives/evaluation review, a set of recommendations for developing assessment and evaluation techniques other than test items are being prepared and presented to the faculty for additional input and revision.

An evaluation questionnaire was designed and administered to faculty to gather their perceptions of the value of the project and each activity, and to solicit their suggestions for improvement. The results of the evaluation were generally positive, and most of the suggestions were helpful for structuring the remaining activities and modifying approaches for future use.

From the results of the evaluation questionnaire and other observations throughout the project, several principles for success became apparent. The following factors are suggested to be important, if not critical, to the success of curriculum modification and faculty retraining efforts:

1. A strong need for action must exist.
2. Faculty members must recognize that the need exists.
3. Faculty members must participate in identifying and specifying the need(s).
4. Faculty members must participate in determining the solution.
5. Faculty members must participate in designing the solution strategies--the procedures to be followed in addressing the need(s).
6. Potentially negative consequences must be outweighed by potential rewards.
7. Target groups must be able to see immediate products and results; results must be observable and documented.
8. Faculty members must have ownership of the products and results.
9. Activities must be monitored, procedures must be modified appropriately, and activities must be continued.